AS 1252: 2016 K0 8.8 HR Structural Assembly

- Fully adhering to the new standard.
- Unique Batch head marking. See photo below
- Verification Testing Reports included in the Supplier Declaration of Conformance [SDoC].
- Full Quality Assurance documentation online.

Assembly testing was made to be ‘normative’ in AS 1252: 2016. This makes it compulsory to do assembly testing for K0 assemblies.

**HOT DIP GALVANISED**
**K0 STRUCTURAL ASSEMBLY**
**AS1252:2016 K0 / CLASS 8.8**

**M20 x 50**
50 pcs

**Q:K02050**

SDoC: This product complies to AS1252:2016 Part 1 and 2 (mandatory). All conforming documentation and quantity production units are available online at hobson.com.au/k0 or scan the below QR code.

<table>
<thead>
<tr>
<th>Part</th>
<th>Size</th>
<th>Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBHK0GCM120</td>
<td>M12</td>
<td>30-200</td>
</tr>
<tr>
<td>KBHK0GCM160</td>
<td>M16</td>
<td>40-700</td>
</tr>
<tr>
<td>KBHK0GCM200</td>
<td>M20</td>
<td>40-800</td>
</tr>
<tr>
<td>KBHK0GCM220</td>
<td>M22</td>
<td>55-200</td>
</tr>
<tr>
<td>KBHK0GCM240</td>
<td>M24</td>
<td>50-750</td>
</tr>
<tr>
<td>KBHK0GCM270</td>
<td>M27</td>
<td>80-200</td>
</tr>
<tr>
<td>KBHK0GCM300</td>
<td>M30</td>
<td>75-725</td>
</tr>
<tr>
<td>KBHK0GCM330</td>
<td>M33</td>
<td>130-230</td>
</tr>
<tr>
<td>KBHK0GCM360</td>
<td>M36</td>
<td>90-600</td>
</tr>
</tbody>
</table>

Property Class as per ISO 898-1

Supplier’s mark
Unique Heat Code

K0
EN 14399: 2005 K2 8.8 HR Structural Assembly

- EN 14399: 2005 K2 8.8 HR [AS 1252: 2016 states that EN 14399 can be used as an ‘alternative assembly type’].
- Premium Range.
- Unique batch head marking. See photo below.
- Friction tightly controlled during manufacture. Refer details on the label for k factor and torque method.
- Torque able to be used for tensioning.
- Full Quality Assurance documentation online.

Carton Label

<table>
<thead>
<tr>
<th>Part</th>
<th>Size</th>
<th>Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBHK2GCM160</td>
<td>M16</td>
<td>40-100</td>
</tr>
<tr>
<td>KBHK2GCM200</td>
<td>M20</td>
<td>45-350</td>
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<tr>
<td>KBHK2GCM220</td>
<td>M22</td>
<td>65-130</td>
</tr>
<tr>
<td>KBHK2GCM240</td>
<td>M24</td>
<td>50-150</td>
</tr>
<tr>
<td>KBHK2GCM300</td>
<td>M30</td>
<td>75-500</td>
</tr>
<tr>
<td>KBHK2GCM360</td>
<td>M36</td>
<td>90-200</td>
</tr>
</tbody>
</table>

- The rated torque value required to bring the steel plies to firm contact (Snug or Bearing Joint).
- The rated torque value required to reach the correct tension in the assembly (Friction Joint).
- The mean value of the k-factor obtained through testing.
- $V_k$ is the coefficient of variation of the k-factor values obtained in testing.
Required Documentation

**EN 14399: 2005 K2 8.8 HR Assembly document structure.**

- European Conformity (CE) Certificate.
  - The European Conformity (CE) mark is given to a manufacturer who has been assessed by a notified body and audited to the Harmonised European Standard (hEN) stating that they have the fabrication processes and quality management in place which is acceptable for the products manufactured. It is a requirement in the European Union to have the required CE marking on their products. A CE mark is only required in AS 1252: 2016 for the alternative and additional assembly types.
- Factory Production Control (FPC).
  - Inspection Certificate.
- Declaration of Performance (DoP).

**K2 Quality Assurance Documentation Online**

Find Test Certificates by typing at least 3 characters of a Heat Number. Then press the FIND button to retrieve links to all matching certificates.

<table>
<thead>
<tr>
<th>Heat Number</th>
<th>Description</th>
<th>Category</th>
<th>Part Number</th>
<th>Certificates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015351400-2MT</td>
<td>EN 8.8 K2 HDG BNV:M24 X 80</td>
<td>AS1252 Structural</td>
<td>KBHK2GCM240080</td>
<td>🇪🇺 🇫🇷 🇩🇪</td>
</tr>
</tbody>
</table>

The European Union’s Certificate of conformity

**AS 1252: 2016 K0 8.8 HR Assembly document structure.**

- Initial Type Testing Certificate (ITT) as demonstrated by the European Conformity (CE) Certificate.
- Factory Production Control (FPC).
  - Inspection Certificate.
- Verification Testing Report must be included in the Supplier Declaration of Conformance (SDoC).
  - Verification Testing is an additional layer to the quality assurance of the K0 assemblies arriving in Australia. Verification Testing must be completed by an independent ILAC (NATA equivalent global body) accredited laboratory.
K0 Quality Assurance Documentation Online

Find Test Certificates by typing at least 3 characters of a Heat Number.
Then press the FIND button to retrieve links to all matching certificates.

<table>
<thead>
<tr>
<th>Heat Number</th>
<th>Description</th>
<th>Category</th>
<th>Part Number</th>
<th>Certificates</th>
</tr>
</thead>
<tbody>
<tr>
<td>JJT-E907654</td>
<td>K0 AS1252:2016 HDG BNW/M20 X 50 AS1252 Structural KBHK0/GCM200050</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TEST REPORT**

Report number: ZMTC/JC-2017-W991-ZJD
Sample name: Assembly - Bolt Nut Washer
Customer: Hobson Engineering Co Pty Ltd

Ningbo Zhongji Inspection of Machinery Parts Co., Ltd

**Suppliers Declaration of Conformity (SDoC)**

Hobson Engineering Co Pty Ltd (ABN 38 000 289 958) has reviewed the MANDATORY attached Verification testing reports (VTR).
Hobson Engineering Co Pty Ltd (ABN 38 000 289 958) has reviewed the packaging and traceability requirements.
Hobson Engineering Co Pty Ltd (ABN 38 000 289 958) has reviewed including testing procedures and nonconforming product.
Hobson Engineering Co Pty Ltd (ABN 38 000 289 958) has reviewed that the Hobson Engineering approved Factory No.02 procedures are in place to maintain product integrity, the product.
The Hotson Engineering Co Pty Ltd has produced the product.
The Initial Type testing (ITT) reports of the factory that produced the product.
The Factory Production Control (FPC) reports for the Initial Type testing (ITT) reports of the factory that produced the product.

The Hobson Engineering approved Factory No.02 has reviewed the MANDATORY attached Verification testing reports (VTR).
Hobson Engineering approved Factory No.02 has reviewed the packaging and traceability requirements.
Hobson Engineering approved Factory No.02 has reviewed including testing procedures and nonconforming product.
Hobson Engineering approved Factory No.02 has reviewed that the procedures are in place to maintain product integrity, the product.
The Hobson Engineering approved Factory No.02 has produced the product.
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The Factory Production Control (FPC) reports for the Initial Type testing (ITT) reports of the factory that produced the product.

Hobson Engineering approved Factory No.02 has reviewed the MANDATORY attached Verification testing reports (VTR).
Hobson Engineering approved Factory No.02 has reviewed the packaging and traceability requirements.
Hobson Engineering approved Factory No.02 has reviewed including testing procedures and nonconforming product.
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The Hobson Engineering approved Factory No.02 has produced the product.
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Hobson Engineering approved Factory No.02 has reviewed the MANDATORY attached Verification testing reports (VTR).
Hobson Engineering approved Factory No.02 has reviewed the packaging and traceability requirements.
Hobson Engineering approved Factory No.02 has reviewed including testing procedures and nonconforming product.
Hobson Engineering approved Factory No.02 has reviewed that the procedures are in place to maintain product integrity, the product.
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The Initial Type testing (ITT) reports of the factory that produced the product.
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Hobson Engineering approved Factory No.02 has reviewed the MANDATORY attached Verification testing reports (VTR).
Hobson Engineering approved Factory No.02 has reviewed the packaging and traceability requirements.
Hobson Engineering approved Factory No.02 has reviewed including testing procedures and nonconforming product.
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The Factory Production Control (FPC) reports for the Initial Type testing (ITT) reports of the factory that produced the product.
K Classification of Bolt Systems

EN 14399 documentation provides performance values for designers along with tests to ensure that the assembly will perform as intended by the standard.

This European standard allows torque to be used when tightening structural bolts. This only applies for K1 and K2 assemblies where the torque-tension relationship is calibrated.

Structural Bolt assemblies that are manufactured to EN 14399 8.8 Type HR with K2 classification comply to the requirement of AS 1252: 2016 and can be used directly in the Australian market.

Torque and Tension?

Forces at play when a bolt is torqued.

**Torque** is the rotational force applied to a solid body.

**Tension** is the axial (along the shank) force applied to a solid body.

We can relate the torque applied to the nut to the tension achieved by the bolt. However, the effect of friction on surfaces that are in contact (threads and nut face) must be calibrated!

Friction

The formula below is applied to relate the tension achieved by the bolt from a specific torque on the nut.

\[ M = F \cdot k \cdot d \]

- **M** = torque required on the nut to achieve ‘F’
- **F** = required tension on the bolt
- **k** = a factor applied to account for the torque loss primarily due to friction.
- **d** = the thread diameter of the bolt

K Class

The K class of a bolt refers to the control of friction between the threads.

**k-class and k-factor**

<table>
<thead>
<tr>
<th>k-class</th>
<th>k-factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>K0</td>
<td>—</td>
</tr>
<tr>
<td>K1</td>
<td>0.10 ≤ k ≤ 0.16</td>
</tr>
<tr>
<td>K2</td>
<td>0.10 ≤ k ≤ 0.23 ( V_s ≤ 0.06 )</td>
</tr>
</tbody>
</table>

From EN 14399: 2005-04.
Structural Bolts Installation

AS 4100-1998

Working definitions:

Torque
The energy taken to twist the nut up the thread of the bolt (Measured in Nm).

Torque is not used as a measure for the tensioning of structural bolting. Bolt torque values are not shown in AS 4100/NZS 3404.

Mathematically, torque can be defined as:

\[ T = r \times F \]

Tension
The force generated in the bolt to clamp the steel plies together (Measured in kN).

Tightening pattern
Snug-tightening and final tensioning of the bolts in a connection shall proceed from the stiffest part of the connection towards the free edges. An example interpretation of a systematic pattern for tightening is provided:

Delivery, storage and handling
Structural bolt assemblies supplied to AS 1252 must be stored in the manufacturers carton protected from wet weather. White rusting on the galvanised surface, dust and removal of the water soluble lubricant on the nut can severely effect installation and correct tensioning.

Re-use of structural assemblies
Under no circumstances can a structural bolt which has been fully tensioned (i.e. the minimum values shown above) be re-used. If a bolt has been tensioned and then has to be removed it must be marked accordingly and destroyed.
<table>
<thead>
<tr>
<th>Structural Assembly</th>
<th>Washer</th>
<th>Nut</th>
<th>Nut</th>
<th>Washer</th>
<th>Nut</th>
<th>Washer</th>
<th>Nut</th>
<th>Washer</th>
<th>Nut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 8.8</td>
<td>35-41 HRC</td>
<td>Class 8.8</td>
<td>Class 8.8</td>
<td>Class 8.8</td>
<td>35-41 HRC</td>
<td>Class 8.8</td>
<td>33-41 HRC</td>
<td>Class 8.8</td>
<td>33-41 HRC</td>
</tr>
</tbody>
</table>

For Metric Squirter® DTI Washers, please see the American Quality directly tension indicator.
Save 25% on your bolting installation cost. Ask us how.

Bolting made Safe, Easy and Accurate

**TONE® Electric Torque Control Wrench**

Featuring:
- 2 x Safety Reaction Arms
- L-Shape Arm + Long Bar Arm 230mm
- Light Weight (7TE 6.2kg, 12TE 9.0kg)
- Non-Impacting
- Low Noise
- Automatic Shut-off at Pre-set Torque
- Torque Range 7TE 350-700Nm
- Torque Range 12TE 500-1100Nm
- 1” Square Drive (Both Models)

PART: XT-STC7TE

PART: XT-STC12TE